GE Lighting Systems, Inc.

Ultra☆Sport™ Floodlight

PRODUCT GUIDE

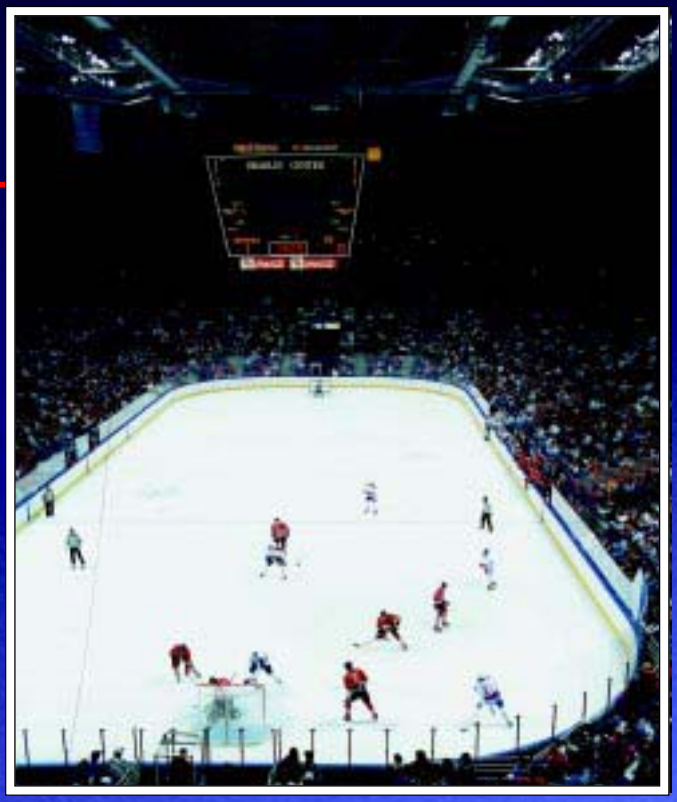
"The greatest highlight in all of sports!"

GE is . . . Sports Lighting!

General Electric has been a world leader in sports lighting for almost 70 years.

The GE Ultra★Sport™ floodlight continues that tradition of sports lighting leadership established with the first lighted field in 1924. GE lighting engineers continue to develop technology and products that focus on one simple goal: *Provide the highest quality and greatest value to our customers!*

GE Ultra★Sport™ floodlights illuminate major stadia such as Coors Field in Denver (back cover) and Bradley Arena in Milwaukee (right).



Just a few GE Ultra★Sport lighted facilities . . .

PROFESSIONAL		
★ *Bradley Arena*	*Hockey/Basketball*	*Milwaukee, WI*
★ *Coors Field*	*Baseball*	*Denver, CO*
★ *Bowie Field*	*Baseball*	*Bowie, MD*
★ *Montreal Forum*	*Hockey/Basketball*	*Montreal, Quebec*
★ *Jaguar's Stadium*	*Football*	*Jacksonville, FL*
★ *Sam Houston Track*	*Horse Race Track*	*Houston, TX*
★ *Memorial Park*	*Softball*	*Las Vegas, NV*
INTERNATIONAL		
★ *Brisbane Club*	*Cricket*	*Brisbane, Australia*
★ *Abu Dhabi Racetrack*	*Horse Race Track*	*Abu Dhabi, UAE*
★ *Karnataka Stadium*	*Cricket*	*Bangelore, India*
★ *Marcana Stadium*	*Soccer*	*Rio De Janeiro, Brazil*
★ *Spaceage Electric*	*Soccer*	*Abu Dhabi, UAE*
★ *Venecia International*	*Soccer*	*Doha, Qatar*
COLLEGE		
★ *University of Maryland*	*Soccer*	*College Park, MD*
★ *Skidmore College*	*Soccer*	*Saratoga Springs, NY*
★ *Rutgers University*	*Soccer*	*New Brunswick, NJ*
★ *University of Virginia*	*Field Hockey & Soccer*	*Charlottesville, VA*
★ *Princeton University*	*Football*	*Princeton, NJ*
★ *Michigan State University*	*Football*	*East Lansing, MI*
★ *Syracuse University*	*Soccer*	*Syracuse, NY*
HIGH SCHOOL		
★ *Ottowa Hills High School*	*Tennis*	*Ottowa, OH*
★ *Hoover High School*	*Baseball*	*Birmingham, AL*
★ *Rodeo Park High School*	*Baseball*	*Tucson, AZ*
★ *Coronado High School*	*Football/Track*	*San Diego, CA*

NOTE: Patents have been applied for on one or more features referenced in this product guide.

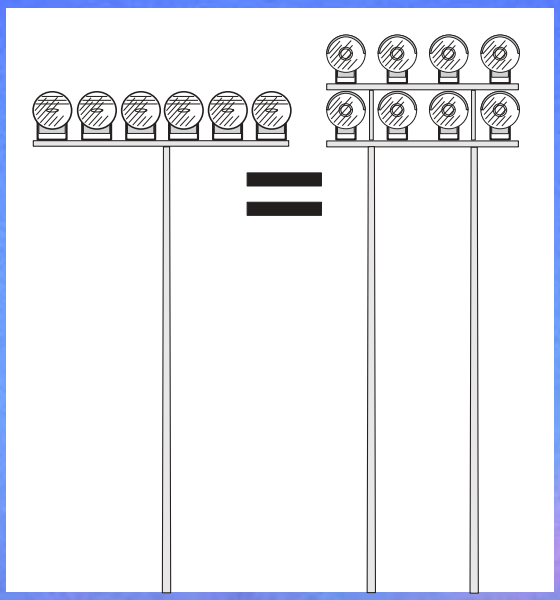
Ultra★Sport™ Floodlight

What Is Ultra★Sport™?

The Ultra★Sport floodlight is the combination of proven lamp, optical and ballast technology from various lighting applications packaged together for the first time in a *state of the art* sports lighting design.

The end result is unmatched light output and efficiency with excellent visibility and color rendering for players, spectators and color TV broadcasting.

Ultra★Sport floodlights also offer outstanding control of unwanted glare and spill light pollution. And it offers affordable optional control features like Instant Hot Restart and System 2™ Bi-Level lighting controls. When you look at all the features the Ultra★Sport has to offer, you will agree that Ultra★Sport is light years ahead of the competition.



What Does the Ultra★Sport Floodlight System Mean to You? . . . *Fewer Fixtures!*

The Ultra★Sport floodlight system significantly reduces the number of fixtures required to provide the same required light levels and uniformity ratios. As a result you get:

- ★ Lower installation costs
- ★ Lower structural costs
- ★ Lower maintenance costs
- ★ Less energy consumption

Applications

- ★ IESNA Class III to major stadia where premium quality lighting and excellent glare control is required.
- ★ Medium to large indoor arenas.
- ★ Large stadia and arenas where color TV recording and broadcasting will be common, and excellent color rendering and high vertical plane illumination is required.
- ★ Sports fields and arenas where optional instant hot restart is desired in case of momentary power interruption or large line dips. This feature can be critical when TV recording and broadcasting is taking place and revenues may be at risk if there is a short duration power loss that could cause an 8 to 12 minute fixture blackout.
- ★ Facilities requiring instant off/on capability for dramatic theatrical lighting choices.
- ★ Other general floodlighting applications where premium lighting is required from a high wattage metal halide source.

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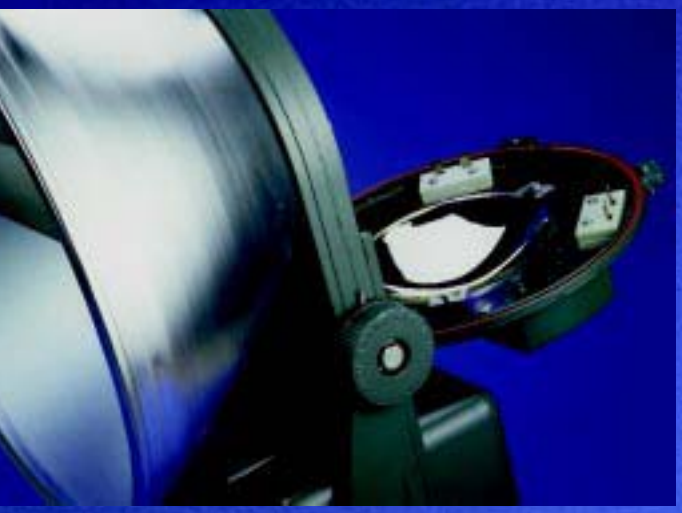
System Features

Advanced Metal Halide Lamp—The Ultra★Sport floodlight takes advantage of metal halide lamp technology, proven by decades of use in all types of lighting applications. It uses an advanced generation of lamps specifically designed for use in sports lighting. Offered in a choice of 2000, 1500 or 1000 watts, these *white* light sources feature a double-ended design without an outer bulb, and provide an average rated life of 3000, 6000 and 10,000 hours, respectively. A standard mogul-base 1500W metal halide lamp has an average rated life of 3000 hours.

These advanced lamps also provide excellent color rendering with a 4000 degree Kelvin color temperature.



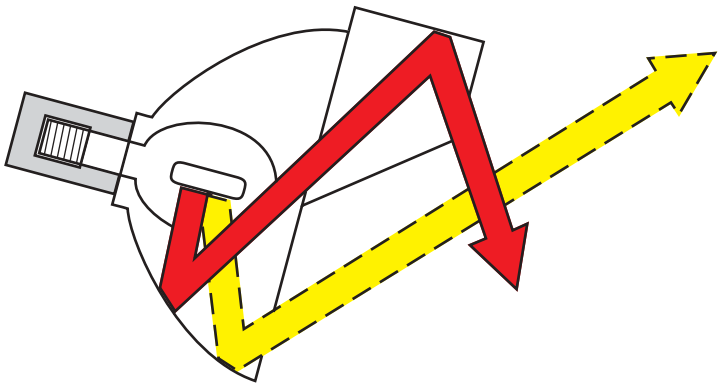
New Optical Design—A two-piece reflector configuration is utilized featuring a Rear/Primary reflector and a Front/Secondary reflector.

The Rear/Primary reflector is made of press-molded glass featuring a special high reflectance coating for a mirror like finish and 95% visible light reflectivity. The Front/Secondary reflector is spun from high quality specular aluminum and has a GE patented ALGLAS® finish.

This new lamp/reflector configuration produces a more efficient and effective *oval* light distribution with very tight vertical light control to minimize wasted light and maximize light on the playing field.

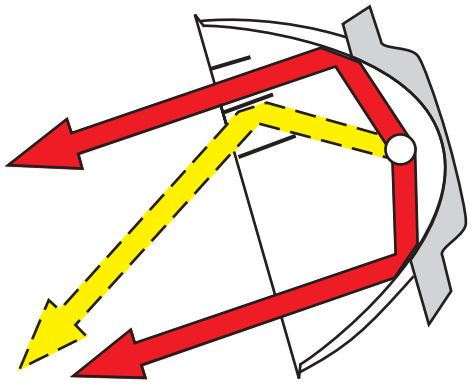
Internal Glare/Spill Light Control

OLD TECHNOLOGY



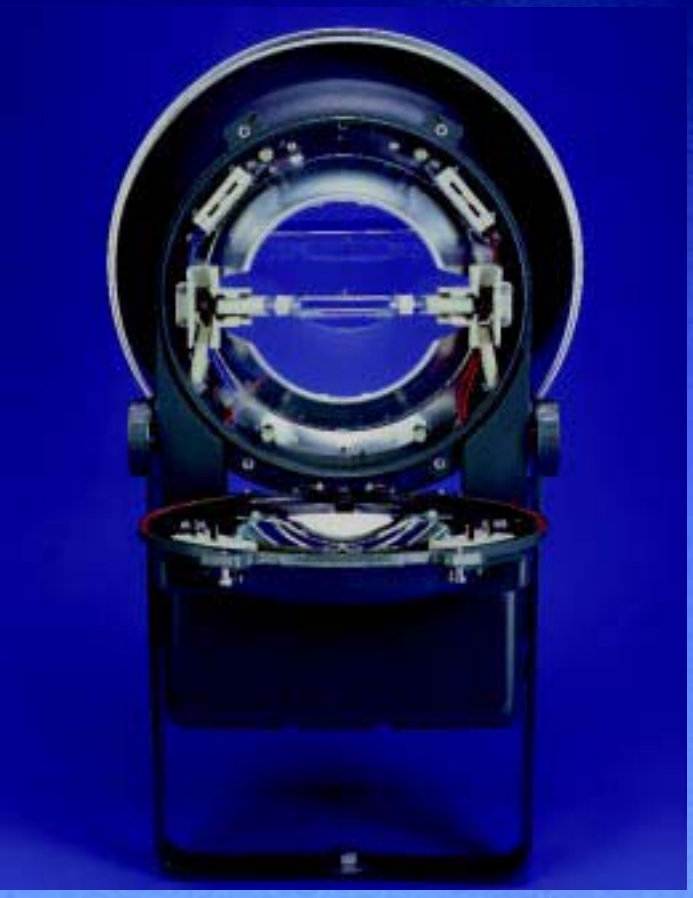
External visors/louvers add to EPA/windload; reduced efficiency

ULTRA★SPORT TECHNOLOGY

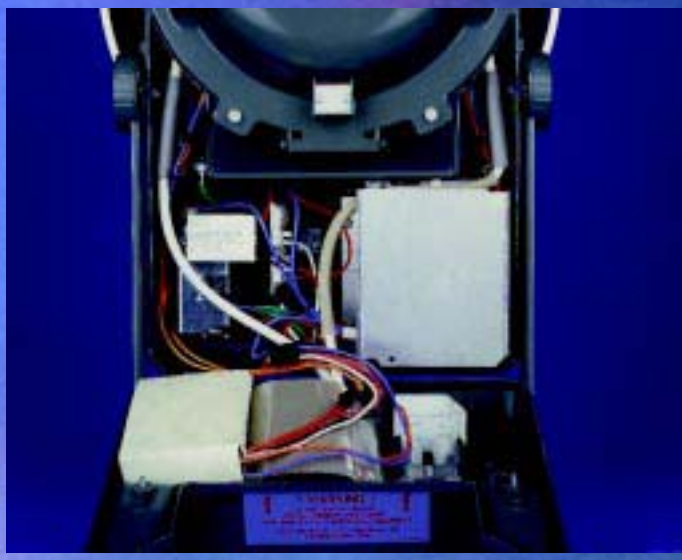


Internal glare arc cutoff skirts—no effect on EPA/windload; higher efficiency

Ultra ☆Sport™ Floodlight



Rear Access Re-lamping and Fixed Aiming—The Ultra★Sport floodlight's rear reflector cover serves as an access door to the optical for re-lamping and maintenance without any adjustment to the aiming of the floodlight. The cover hinges open 90 degrees for easy access.



Instant Hot Restart—Ultra★Sport floodlights can be ordered with a new optional instant hot restart feature. After a momentary power interruption or line voltage dip which causes the lamp to extinguish, the hot restart pulse will restart the lamp within two seconds of power reapplication.

Broken Glass Shutdown Circuit—Metal halide light sources produce ultraviolet (UV) radiation. If a person is directly exposed, this radiation can cause discomfort and sometimes permanent eye damage. Normally UV radiation is absorbed in a lamp's outer bulb or jacket.

Unjacketed lamps rely on a luminaire's optical lens to absorb UV. If the lens of a fixture that uses an unjacketed lamp is broken, the escaping ultraviolet radiation can create a potential health risk to players and spectators.

Because of this risk, Ultra★Sport floodlight is the first sports lighting fixture to feature a Broken Glass Shutdown Circuit .

The system continuously senses the integrity of the front door glass. In the unlikely event that the lens is broken, the system automatically shuts off power to the lamp. A Broken Glass Shutdown Circuit is a standard feature on all Ultra★Sport luminaires.

Technical Description

Luminaire Construction—Ultra★Sport floodlight's optical reflectors and electrical components are enclosed and protected in integral, but thermally isolated, heavy-duty aluminum housings.

Rear Reflector Housing—The Rear/Primary reflector is housed in a non-corrosive high pressure die-cast aluminum cover hinged to the main housing ring and held shut by four corrosion resistant fasteners. High temperature gaskets completely seal the rear reflector housing to the main housing.

Rear Re-Lamping—The rear reflector cover serves an access door to the optical and provides no-tool entry for re-lamping and maintenance without any adjustment to the aiming of the floodlight. The cover hinges open 90 degrees where it is physically stopped.

For safety, a lamp power disconnect circuit removes power to the lamp when the rear access door is opened.

Front Reflector Housing—The 20-inch (508mm) Front/Secondary aluminum reflector is enclosed in a heavy-duty spun aluminum casing. The front tempered door glass is 1/8-inch (3.2mm) thick and is permanently sealed and gasketed to the casing. A high temperature gasket seals the front optical.

Hydro★Gard™ Filtered Optics—The entire optical is sealed, so that all thermal air transfer moves through an advanced filtering system with particle trapping, chemical absorbing and moisture controlling properties—critical for unjacketed metal halide lamp life and optimum optical performance.

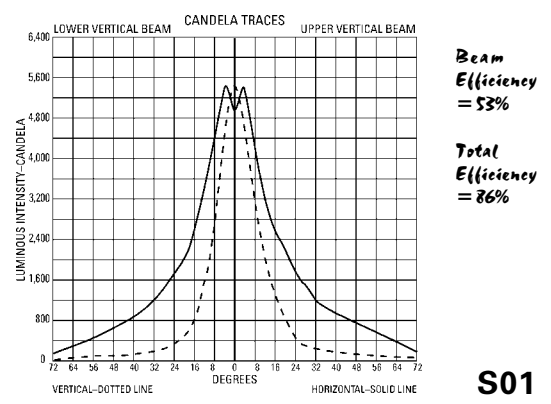
Main Power Train Housing—The main housing is made of lightweight high-pressure die-cast aluminum and is integral to the entire system.

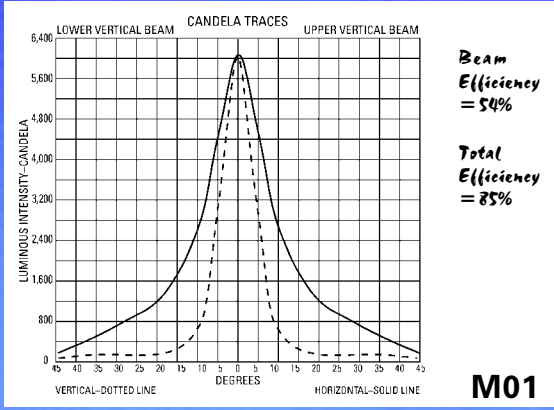
The main housing design isolates the upper optical ring from the lower electrical compartment for excellent thermal transfer.

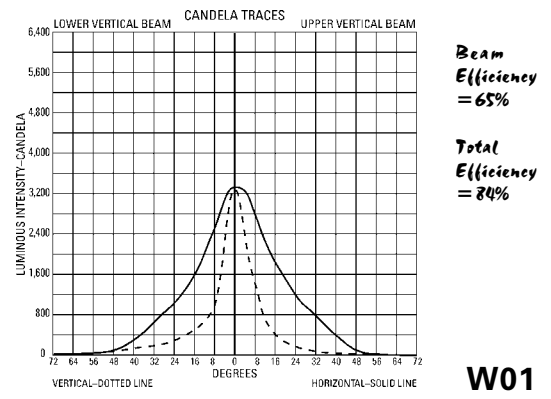
The lower compartment contains all electrical components including the optional hot restart components, in a compact low wind load design.

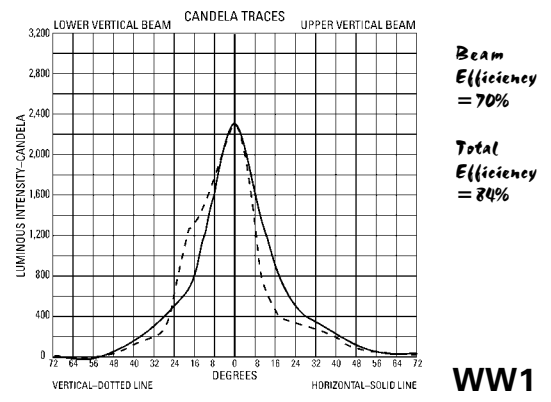
Unlike other sports lighting fixtures that offer hot restart, the Ultra★Sport does not require any external add on modules or transformers that attach to the standard unit or protrude into the reflector and reduce photometric performance. All hot restart components mount inside the standard housing, so both the standard and hot restart units have the same external appearance and performance.

Ultra ★Sport™ Floodlight









Photometric Performance—Traditional sports lighting systems use metal halide lamps with large bulb jackets and mogul base sockets located in the axial center-line of the optical. This lamp design impedes optical efficiency by producing inefficient symmetrical light distributions with too much light in the upper beam. Some upper beam light is lost in the sky and grandstands or, in the worst case, can be the source of light trespass and glare.

The Ultra★Sport floodlight, on the other hand, utilizes an advanced double-ended metal halide lamp without a bulb jacket and a new unique reflector design.

The elimination of the outer bulb allows placement of the lamp arc into the focal point of shallow parabolic reflector forms needed to build high center beam candle power and provide the highest beam efficiency possible with wide beam distributions.

This new lamp/reflector configuration produces a more efficient, *oval* light distribution with very tight vertical light control to minimize wasted light and maximize light on the playing field.

Glare/Spill Light Control—The Ultra★Sport floodlight's precise optical design limits the amount of vertical spill and light pollution *without* the use of external visor/louver assemblies that increase wind loading and structure costs. Optional internal cutoff skirts are available and provide direct cutoff of the arc tube at 15 degrees above the floodlight's center aiming point for optimum glare control *without* the high losses normally associated with external glare reducing devices.

Photometric Choices—Different combinations of primary and secondary reflectors, in conjunction with the new double-ended lamp, provide multiple *oval* light distributions.

S01 =Stadium oval without internal glare control (NEMA 4X2)

S02 =Stadium oval with internal glare control (NEMA 4X2)

M01 =Medium oval without integral internal glare control (NEMA 4X2 [64x24])

M02 =Medium oval with integral internal glare control (NEMA 4X2 [70X24])

W01 =Wide oval without integral internal glare control (NEMA 5X3 [81X38])

W02 =Wide oval with integral internal glare control (NEMA 5X3 [81X37])

WW1 =Extra wide oval without internal glare control (NEMA 5X4)

WW2 =Extra wide oval with internal glare control (NEMA 5X4)

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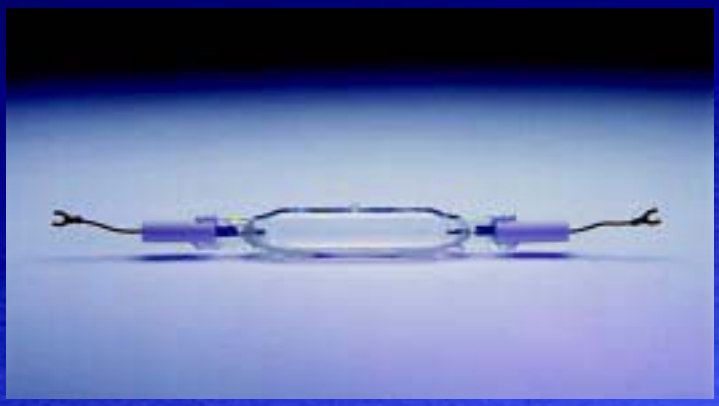
Lamp Specification—The Ultra★Sport floodlight takes advantage of metal halide lamp technology, proven by decades of use in all types of lighting application. It uses an advanced generation of lamps specifically designed for use in sports lighting. Offered in a choice of 2000, 1500 or 1000 watts, these *white* light sources feature a double-ended design without an outer bulb, and provide an average rated life of 3000, 6000 and 10,000 hours, respectively.

These advanced lamps also provide excellent color rendering with a 4000 degree Kelvin color temperature. They are designed for an orientation of horizontal plus or minus 4 degrees, and have no tilt factor.

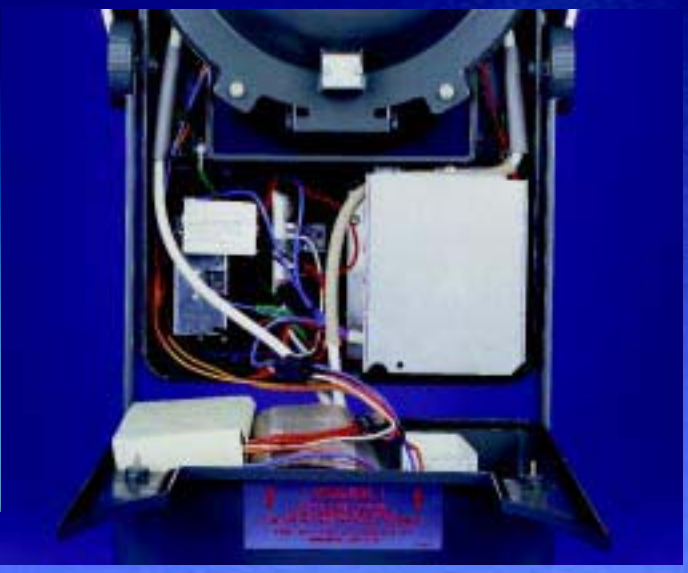


LAMP DATA	Metal Halide 2000 Watt Double-Ended	Metal Halide 1500 Watt Double-Ended
GE Lamp Number	MQI/2000/T9/40	MQI/1500/T8/40
Catalog Number—OSRAM Sylvania	M2000T9/DE	M1500/T9/DE
ANSI Designation	U134	U133
Burning Position	Horizontal ± 4 Degrees	Horizontal ± 4 Degrees
MOL	10.00 Inches (254mm)	10.00 Inches (254mm)
LCL	5.00 Inches (127mm)	5.00 Inches (127mm)
Arc Length	4.25 Inches (108mm)	4.25 Inches (108mm)
Base	Ceramic #10 Spade	Ceramic #8-10 Spade
Lamp Volts	250 ± 10 Volts	265 ± 10 Volts
Lamp Current	8.5 Amps	6.3 Amps
Ignitor Pulse (Peak)	4000-5000 Volts	4000-5000 Volts
Pulse Width @ 3600 volts	One Microsecond	One Microsecond
Minimum Pulse Required	4000 Volts	4000 Volts
Initial Lumens	200,000	160,000
Lumens at 100 Hours	100%	100%
Lumens at 40% Rated Life	85%	85%
Average Rated Life	3000 Hours	6000 Hours
Color Temperature	4000° Kelvin	4000° Kelvin
CRI	RA=65+	RA=65+
Hot Restart Capability	Yes	Yes
Lamp Seal Temperature	Not to exceed 450 degrees C.	Not to exceed 450 degrees C.
Bulb Wall Temperature	Not to exceed 950 degrees C.	Not to exceed 950 degrees C.

Lamp Installation—Ultra★Sport floodlights are shipped with lamps installed.

The double-ended metal halide lamp mounts transversely to a specific orientation by inserting the lamp ends into pre-focussed ceramic holders. It is held in place by stainless steel spring clips that snap/lock in place. The electrical connection of the lamp is separate from the mechanical support, and is made by connecting the spade ended-lamp leads to the socket terminals and tightening with a screwdriver.

Ultra ☆Sport™ Floodlight



Ballast System—All Ultra★Sport floodlights feature the new compact GE Accuwatt™ ballast system in which the ballast is direct mounted to the aluminum housing with a thermal wedge for optimum heat transfer.

GE Accuwatt™ 2000, 1500 and 1000 watt auto-regulator circuits are designed to start and stabilize their respective double-ended metal halide lamps at their design center.

Ballast dielectric material is rated for a 200 degree C maximum operating temperature.

Every ballast undergoes a 2500 volt RMS "High Pot" and a 10KV "til" test in accordance with ANSI C82.4, C82.6 and C92.1 specifications. The ballast circuits are also designed to sustain a nominal lamp over a line voltage dip of 50% for up to four seconds when operating at nominal line voltage according to ANSI specification C82.6.

Watts	Line Volts	% Allowable Line Voltage Variation	Line Operating Amperes	Line Watts	Power Factor %	Line Starting Amperes	% Allowable Line Voltage Dip
2000	208		11.2	2125		10.0	
*25°C	240		9.5	2115		8.5	
Max	277		8.3	2115		7.2	
Ambient	347	±10	6.6	2122	90+	5.6	50
	480		4.8	2132		4.4	
1500	120		14.4	1630		11.2	
*40°C	208		8.5	1630		6.9	
Max	240		7.3	1630		5.6	
Ambient	277	±10	6.3	1630	90+	4.7	50
	347		4.8	1620		3.9	
	480		3.7	1630		2.8	
1000	120		9.0	1080		6.6	
*40°C	208		5.4	1070		4.1	
Max	240	±	4.8	1080	90+	3.5	50
Ambient	237		4.1	1080		2.9	
	347		3.6	1070		2.9	
	480		2.6	1088		1.8	

NOTE: For 50Hz voltages, contact factory.
*See ballast table for wattage limitations.

The ballast circuit will reliably start and stabilize a nominal lamp in ambient temperatures down to -29 degrees C. The unit is rated for operation in up to 40 degree C ambient temperatures.*

Ballast Maintenance—Electrical access is achieved from the rear of the fixture without any adjustment to the aiming required. The rear housing cover is held in place by four captive corrosion-resistant cad-polymer coated screws.

Optional Instant Hot Restart—The Ultra★Sport floodlight can be ordered with a new optional instant hot restart feature. After a momentary power interruption or line voltage dip which causes the lamp to extinguish, a 34KV hot restart circuit will restart the lamp within two seconds of re-application of power.

Optional System 2™ Bi-Level Controls—The choice of high/low two-level lighting is also available. System 2 Bi-Level controls utilize a 15 volt AC signal that is hard wired to the floodlight to switch capacitance and change wattage.

The 2000/1500 watt and 1500/1000 watt system choices are available for separate game time and practice light levels.

Structural Data

Mounting—The Ultra★Sport floodlight comes standard with a heavy-duty steel mounting trunnion finished with a zinc-rich epoxy powder paint for superior corrosion resistance. It can be either top or bottom mounted, is precision balanced for accurate aiming and is capable of withstanding wind forces equal to 125 MPH with a 1.3 gust factor without misalignment of the floodlights.

Aiming—Simply open the rear re-lamping door and align the lamp's quartz shutoff tip with the front glass crosshair and target. Once these three points are aligned, tighten the trunnion bolts.

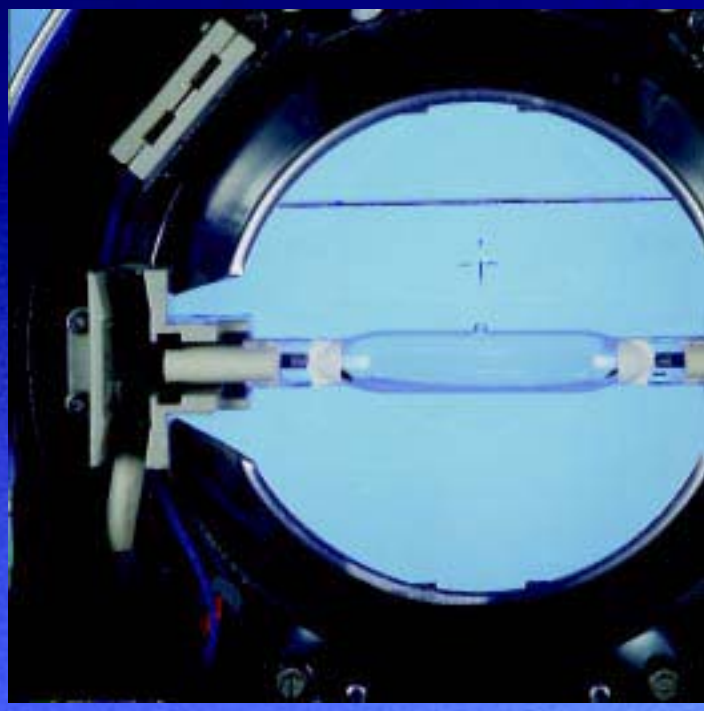
Because all access to maintain the Ultra★Sport floodlight is from the rear, the aiming never needs to be disturbed to re-lamp or perform ballast maintenance.

Wind Loading/EPA—The maximum effective projected area (EPA) per floodlight is 3.1 sq ft (0.29 sq M).

Weight—The maximum weight is 55 lbs (25 kgs) standard, and 75 lbs (34 kgs) hot restart.

Vibration—The Ultra★Sport floodlight has passed vibration tests at 2 G's for 100,000 cycles in each of three planes; vertical, horizontal and diagonal with no damage to the system.

Classification—IP55



Ease of Installation/Maintenance

Ultra★Sport floodlight comes with the following installation and maintenance features:

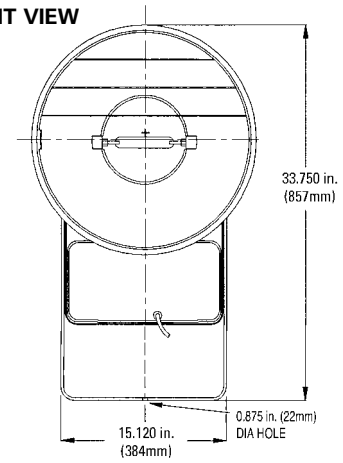
- ★ Completely assembled with the lamp installed for fast, low-cost installation
- ★ Rear re-lamping with no-tool access
- ★ Rear access to ballast compartment
- ★ Permanent, fixed aiming
- ★ Die-cast degree indicators
- ★ Easy-to-use aiming sight

Ultra ★Sport™ Floodlight

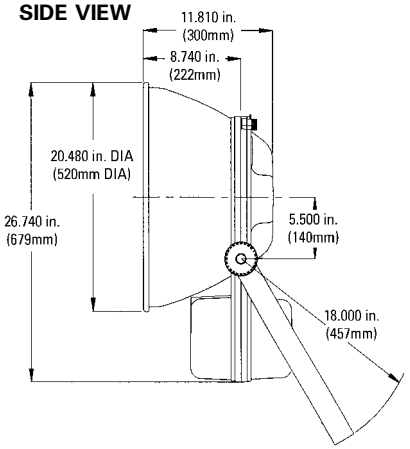
Dimensional Data and Ordering Information

DIMENSIONS

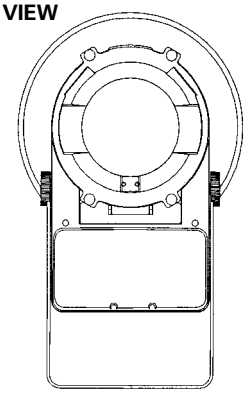
FRONT VIEW



SIDE VIEW



REAR VIEW



ORDERING NUMBER LOGIC

UL LISTED

ULTS 02 M 5 A M02 P

PRODUCT ID. XXXX	WATTAGE XX	LIGHT SOURCE X	VOLTAGE X	BALLAST TYPE X	OPTICAL XXX	OPTIONS XXX
ULTS = Ultra★Sport **ULTK** = Ultra★Sport with Instant Hot Restart **ULTI** = Ultra★Sport Indoor Remote Ballast **ULTR** = Ultra★Sport Indoor Remote Ballast with Instant Hot Restart	**01** = 1000 **51** = 1500 **02** = 2000	**M**=MH NOTE: Lamp orientation is horizontal ±4 degrees Standard: Lamp installed in socket.	**0** =120/208/240/277 Multivolt **1** =120 **2** =208 **3** =240 **4** =277 **5** =480 **D**=347 NOTE: For 50Hz voltages contact factory	See Ballast and Photometric Selection Table **A**=Autoreg **B**=System 2™ Bi-Level Controls Autoreg (see Technical Section 9000) NOTE: Not available with **ULTK** or **ULTR** (Hot Restart)	**S01** = Stadium Oval ***without*** Internal Glare Control Skirts (NEMA 4X2) **S02** = Stadium Oval ***with*** Internal Glare Control Skirts (NEMA 4X2) **M01** = Medium Oval ***without*** Internal Glare Control Skirts (NEMA 4X2) **M02** = Medium Oval ***with*** Internal Glare Control Skirts (NEMA 4X2) **W01** = Wide Oval ***without*** Internal Glare Control Skirts (NEMA 5X3) **W02** = Wide Oval ***with*** Internal Glare Control Skirts (NEMA 5X3) **WW1**= Extra wide oval ***without*** Internal Glare Control (NEMA 5X4) **WW2**= Extra wide oval ***with*** Internal Glare Control (NEMA 5X4)	**F** = Fusing (Not available with multivolt) **P** = Pre-wired with 6-ft (2M) #14/3

BALLAST AND PHOTOMETRIC SELECTION TABLE

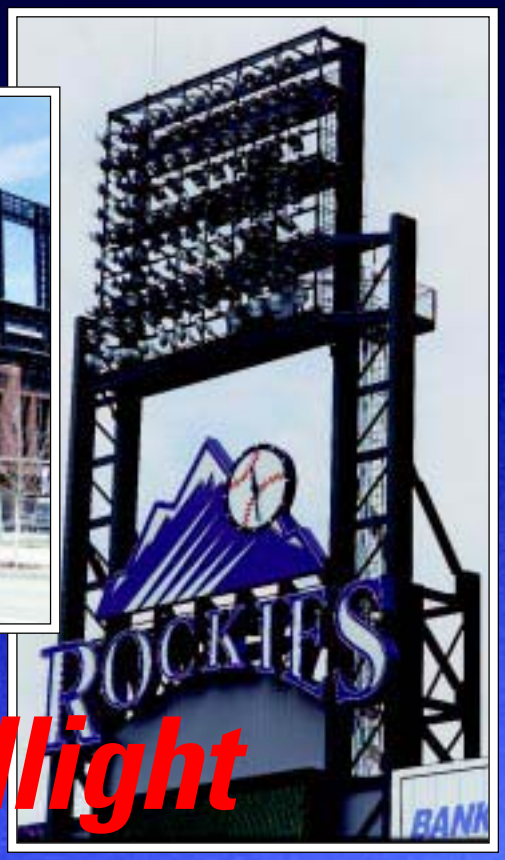
All light sources are clear unless otherwise indicated.

Wattage	Light Source	Ballast Type All Voltages	Socket Position	Photometric Curve Number 35-17 - - - -							
				S01	**S02**	**M01**	**M02**	**W01**	**W02**	**WW1**	**WW2**
1000	MH	**A,B****	Fixed	C/F	C/F	C/F	C/F	C/F	C/F	C/F	C/F
1500	MH	**A,B****	Fixed	9085	9086	9087	9088	9089	9090	9412	9413
2000*	MH	**A,B****	Fixed	9085	9086	9087	9088	9089	9090	9412	9413

NOTE: C/F = Contact factory. *Not available in multivolt or single 120 volt. **Not available with Instant Hot Restart

DATA

Approximate Net Weight	55-80 lbs (25-36 kgs)
Effective Projected Area	3.1 sq ft maximum (0.29 sq M maximum)



Ultra★Sport™ Floodlight

GE Lighting Systems, Inc.

Hendersonville, NC 28793-4506

OLP-2518B
7/97(5M)GELS